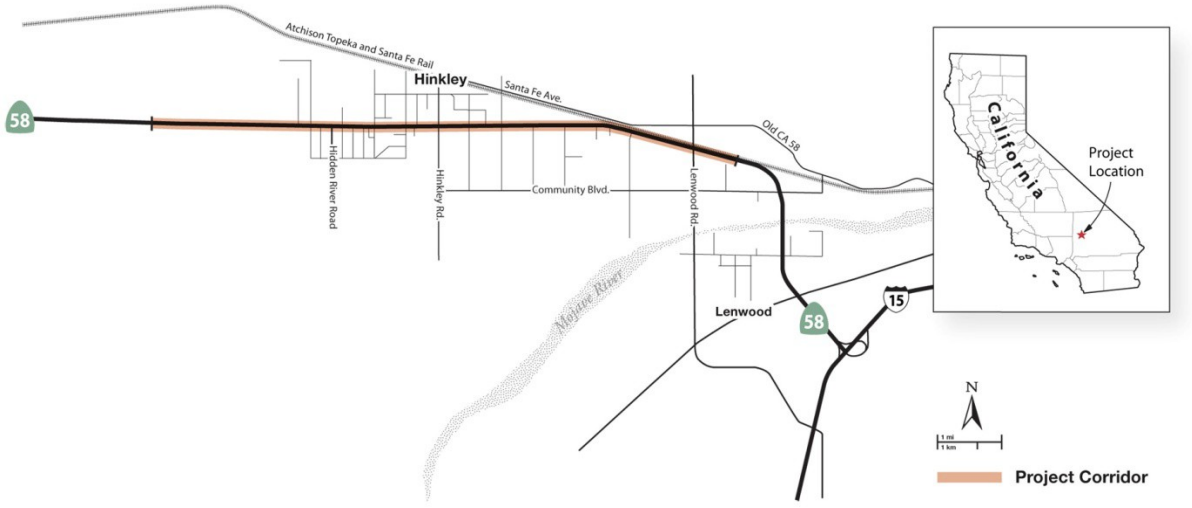
State Route 58 (SR-58) Hinkley Expressway Project

SAN BERNARDINO COUNTY, CALIFORNIA
DISTRICT 8 – SBD – SR-58 (PM 22.2/31.1)
EA 08-043510
PN 0800000010

Final
Environmental Impact Report/ Environmental Impact Statement



Prepared by the
California Department of Transportation

The environmental review, consultation, and any other action required in accordance with applicable federal laws for this project is being, or has been, carried-out by Caltrans under its assumption of responsibility pursuant to 23 USC 327.

Caltrans

JUNE 2013

[this page left blank intentionally]

General Information about This Document

For individuals with sensory disabilities, this document can be made available in Braille, in large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please call or write to James Shankel, Senior Environmental Planner, California Department of Transportation, District 8 Division of Environmental Planning, 464 West 4th Street, 6th Floor MS-827, San Bernardino, CA 92401-1400; (909) 383-6379, or use the California Relay Service 1-800-735-2929 (TTY to Voice), 1-800-735-2922 (Voice to TTY), 1-800-854-7784 (From or to Speech to Speech), or dial 711.

[this page left blank intentionally]

SCH #2007051067
08-SBD-58-Post Mile (PM) 22.2/ 31.1
EA 08-043510
PN 0800000010

Grade separate, widen, and realign State Route 58 (SR-58) from PM 22.2 to 31.1, through the community of Hinkley, in San Bernardino County

FINAL ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT STATEMENT

Submitted Pursuant to: (State) Division 13, California Public Resources Code
(Federal) 42 USC 4332(2) (C)

THE STATE OF CALIFORNIA
Department of Transportation

Cooperating Agencies:

U.S. Army Corps of Engineers (USACE)
U.S. Bureau of Land Management (BLM)

Responsible Agencies:

California Department of Fish and Wildlife
California Public Utilities Commission
California Regional Water Quality Control Board, Region 6
California Transportation Commission
County of San Bernardino

06/27/13
Date of Approval

Basem Muallem
District Director
District 8
California Department of Transportation
CEQA Lead Agency
NEPA Lead Agency

The following person(s) may be contacted for additional information concerning this document:
James Shankel, Senior Environmental Planner
California Department of Transportation
District 8 Environmental Planning
464 W. 4th Street, 6th Floor MS 827
San Bernardino, California 92401-1400
(909) 383-6379
james.shankel@dot.ca.gov

Abstract: The State Route 58 (SR-58) Hinkley Expressway Project would widen and realign an existing 8.9-mile segment of SR-58, near the community of Hinkley in western San Bernardino County. The purpose of this project is to (1) maintain route continuity by upgrading the facility to a controlled access four-lane expressway, which would match existing sections of SR-58, east and west of the proposed project area; (2) to relieve congestion by providing a Level of Service which is consistent with what is listed in the SR-58 Route Concept Report; (3) upgrade the pavement and roadway cross-section, grade separate, meet current standards to better accommodate truckloads, reduce roadway damage and maintenance costs associated with the high volume of truck traffic carrying goods on this route; and (4) improve safety and operations within the project limits. Environmental effects on biological resources, community cohesion/character, relocation impacts, and aesthetics are anticipated. Comments on this document are due by Monday, August 12, 2013, and should be sent to James Shankel at the above address.

[this page left blank intentionally]

Table of Contents

Tables

Figures

Summary

[this page left blank intentionally]

Summary

Changes have been made to this Environmental Document since the public circulation of the Draft Environmental Impact Report / Environmental Impact Statement (DEIR/EIS) between January 4, 2013 and February 19, 2013. Public and agency comments received during the circulation of the DEIR/EIS, and the related Open Forum Public Hearing which was held on January 23, 2013 during the circulation period, resulted in refinements that have been incorporated into this Final Environmental Impact Report/Environmental Impact Statement (FEIR/EIS). A vertical line in the outside margin indicates changes in the adjacent part of this FEIR/EIS in relation to the corresponding part in the DEIR/EIS.

Overview of Project Area

Caltrans, serving as lead agency under the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA), proposes to widen State Route 58 (SR-58) from a two-lane conventional highway to a four-lane expressway near the unincorporated community of Hinkley, from Post Mile (PM) 22.2 to PM 31.1. The total length of the project is 8.9 miles, from 2.4 miles west of Hidden River Road to 0.7 miles east of Lenwood Road. The project area is approximately five miles west of the city of Barstow, within the Mojave Desert region of San Bernardino County, California. (See Figure 1.1 Project Vicinity Map and Figure 1.2 Project Location Map in Chapter 1 of this document).

The project is fully funded and is in the SCAG 2013 Federal Transportation Improvement Program (FTIP) (Project Number 4351), which was found to conform by FHWA on December 14, 2012.[1] Also, the project is included among the listing of the modeled projects in the SCAG 2012 RTP (Project Number 4351). Analysis concludes that the project's operational emissions (which include the ozone precursors reactive organic gases [ROG] and NO_X) meet the transportation conformity requirements imposed by the EPA and MDAQMD. Please see copies of the listing of the project in the 2012 RTP and the 2013 FTIP in Appendix I of this document.

Purpose and Need

Project Purpose

The purpose of the SR-58 Hinkley Expressway Project is:

- To relieve traffic congestion by providing an acceptable Level of Service, which is consistent with the State Route 58 Route Concept Report;
- To improve operational efficiency and enhance safety conditions by upgrading the facility to a controlled access, four-lane expressway that matches the sections on the east and west of the project area on this high emphasis route;
- To correct structural deficiencies, by upgrading the pavement structural section to meet current standards to better accommodate truckloads, reducing roadway damage and maintenance costs associated with the high volume of truck traffic utilizing this route; and

[1] Project described in Final 2013 FTIP as "SR58 Expressway-realign and widen from 2-4 lane expressway. New interchanges at Lenwood Rd and Hinkley Rd 2.4 miles west of Hidden River Rd. to 0.7 miles east of Lenwood Road -- realign and widen to 4 lane expressway (2-4 lanes) (phase 2)."

- To meet the needs for regional transportation in accordance with regional plans such as the RTP and FTIP, while minimizing right of way, community, and environmental impacts.

Project Need

SR-58 is a Significant Transportation Corridor extending a total of 240 miles, from United States 101 (U.S.-101) near San Luis Obispo, to the west, to Interstate 15 (I-15) in Barstow, to the east. SR-58 crosses three major north-south routes: I-5, SR-99, and U.S. 395. SR-58 also serves as the major connection point between I-5 in Bakersfield and I-15 and I-40 in Barstow. SR-58 is also the only east-west corridor for interregional travelers in the area. The nearest east-west alternate is State Route 210 (SR-210)/Interstate 210 (I-210), located 60 miles to the south; therefore, there are no other viable alternatives for travel. Traffic on SR-58 includes a high volume of interstate trucks that transport agricultural and commercial commodities.

Capacity, Transportation Demand, and Safety

Existing Capacity and Level of Service (LOS)

Currently, existing SR-58 operates at LOS E through the project area. This is an unacceptable LOS. By 2040, if no improvements are made to SR-58, the LOS is projected to deteriorate to LOS F. LOS is a qualitative measure that describes operational conditions within a traffic stream, generally in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety. LOS conditions are designated as "A," indicating best free-flow conditions, through "F," indicating worst-case, congested conditions. (See Figure 1.3 Highway Levels of Service Definitions).

Regional Population/Traffic Forecasts

A regional population forecast is provided in the 2008 SCAG Regional Transportation Plan (RTP) Programmatic Environmental Impact Report (PEIR). The 2008 SCAG RTP PEIR provides a projection of regional population up to forecast year 2035. For San Bernardino County, the 2008 baseline population was 2,097,756. The 2035 regional population forecast estimates a planned population of 2,957,370. Based upon these forecasts, a nearly 41% increase in regional population is projected between 2008 and 2035.[2] Regional traffic is predicted to increase with the projected growth in population.

Projected Capacity Needs

Average daily traffic (ADT) is forecast to nearly double, from 12,100 vehicles in 2011 to 24,100 vehicles in 2040. If no improvements are made, this highway segment is projected to deteriorate from LOS E to LOS F by 2040, with heavy traffic congestion and great variations in speed.[3] With respect to the traffic forecasts for the design horizon year for this project (2040), Alternative 1 (the No-Build Alternative) is based on the existing two lane conventional highway structure. The Build Alternatives 2, 3, and 4 are based on the construction of a four lane

[2] Southern California Association of Governments. 2008. *2008 Southern California Association of Governments Regional Transportation Plan Programmatic Environmental Impact Report*. Available: <http://www.scag.ca.gov/RTPpeir2008/pdfs/draft/2008Draft_RTPpeir_complete.pdf>. Tables 2-1 and 3.11-2.
[3] Transportation Research Board. 2000. *Highway Capacity Manual*.

expressway. The LOS under Alternatives 2, 3, and 4 would improve to LOS B in the opening year and LOS C in 2040.

Existing Accident Rates

Caltrans' Traffic Accident Surveillance and Analysis System (TASAS) shows that there were 50 accidents from 07-01-2008 to 06-30-2011, on eastbound and westbound SR-58, between PM 22.2 to PM 31.1. The project area experienced lower total accident rates than those for a similar highway. However, fatality rates were slightly higher than those expected for a similar facility. (See Table 1-2).

Roadway Deficiencies

Operational Deficiencies

Driveways and Intersections: The existing two-lane highway has numerous driveways and intersecting cross-streets, which present conflict points that affect the operation of the highway. Vehicles enter and exit the highway to access businesses, services, and residences along SR-58. There are numerous crossings (both paved and unpaved) where these turning movements occur.

Route Continuity between Existing Four-lane Expressways: Route Continuity is defined as the provision of a directional path along and throughout the length of a designated route. The goal of route continuity is to ease the driving task by reducing the need to change lanes and search for directional signing. At the project location, SR-58 is a two-lane facility; however, immediately east and west of the project, SR-58 is a four-lane facility. The narrower highway section within the project area creates a bottleneck between the existing four-lane highway sections and decreases route continuity.

Structural Section Limitations

The existing pavement structural section of SR-58 was not designed to accommodate the designation pertaining to the national network for Surface Transportation Assistance Act of 1982 (STAA) trucks. This has resulted in a higher pavement maintenance costs.

Proposed Action

The project (Build Alternative 2) would realign and widen SR-58 from a two-lane conventional highway to a four-lane expressway with full access control, near the unincorporated community of Hinkley, within San Bernardino County, California. The physical improvements for the project would extend from PM 22.2 to PM 31.1; however, in order to account for signage during construction the total project limits would extend from PM 21.7 to PM 31.6 (See Figure 1.1 and Figure 1.2). The alternatives are:

- Alternative 1 – No-Build: SR-58 would remain as is without any improvements.
- Alternative 2 – Southerly Alignment (Preferred Alternative): A new alignment would diverge from the existing alignment approximately two miles west of Valley View Road in a southeasterly direction to Valley View Road just south of Frontier Road, continuing along a gentle curve easterly from Valley View Road until it rejoins the existing alignment approximately 0.75 mile east of Lenwood Road. The alignment would run approximately 0.5 mile south of the existing SR-58 alignment. The estimated cost for this alignment is $174,467,000.

- Alternative 3 – Existing Alignment: A new facility would run along the existing SR-58 alignment. The new alignment would diverge from the existing alignment just west of Mountain View Road along a gentle curve southeasterly to Lenwood Road, for approximately 3 miles. At the easterly end of the project limits, the alignment would be adjusted to avoid encroachment on the BNSF railroad. The estimated cost for this alignment is $194,890,000.
- Alternative 4 – Northerly Alignment: The realignment and widening of SR-58 would occur slightly north of the existing SR-58. The new alignment would diverge from the existing alignment about 0.75 miles east of Frontier Road, running parallel to and approximately 0.5 miles north of the existing SR-58 alignment, and would converge with existing SR-58 0.75 miles east of Lenwood Road. The estimated cost for this alignment is $194,803,000.

Identification of Preferred Alternative

Full consideration was given to the technical studies prepared for the alternatives, and data was carefully analyzed for all alternatives on an equal basis. After comparing and weighing the benefits and impacts of all of the feasible alternatives, at a Project Development Team (PDT) meeting on December 6, 2012, the PDT identified Alternative 2 as the preferred alternative, subject to public review. Figures showing Alternative 2 are in Chapter 2 of this document.

Alternative 2 achieves the purpose and need of the project, and provides the same level of operational improvement as the other two build alternatives (Alternative 3 and Alternative 4); however, Alternative 2 is expected to cost substantially less, currently approximately $20 million less.

Alternative 2 is expected to result in substantially fewer parcels needing to be acquired, and more specifically, is also expected to result in substantially fewer displacements of homes, businesses, as well as community facilities. In addition, Alternative 3 and 4 bisect and pass through the center of the Hinkley community, and therefore have greater community character and cohesion impacts than Alternative 2 (which skirts the southern fringe of the community).

For the community of Hinkley, hazardous waste and the groundwater plume is a major issue, and impacts to hazardous materials and the mitigation systems which others have installed are a major consideration. Alternative 2 is expected to result in substantially fewer Pacific Gas and Electric (PG&E) wells in the project area being impacted, and would specifically avoid any impacts to any PG&E extraction wells and USGS wells.

Regarding biological resources, it is currently expected that Alternative 2 would impact more acres than Alternative 3 or Alternative 4, however, the ability to mitigate impacts to biological resources versus the ability to mitigate impacts to existing residences and businesses located in the project area, as well as the ability to minimize impacts to existing PG&E wells in the project area, is a major factor considered by the PDT in conjunction with identifying Alternative 2 as the Preferred Alternative, along with factoring in the substantial difference in total estimated cost to construct the project with Alternative 2, while providing the same level of operational improvement in achieving the purpose and need for the project.

Table S-2: Summary of Potential Impacts & Proposed Measures by Alternative, included below, provides additional information about the differing potential impacts between the alternatives,

and Section 2.2.2 in Chapter 2 of this document provides further discussion regarding identification of Alternative 2 as the Preferred Alternative.

On February 26, 2013, following conclusion of the circulation period for the Draft Environmental Impact Report/Environmental Impact Statement (DEIR/EIS), and after careful consideration of the comments received during circulation, the PDT affirmed Alternative 2, initially identified as the Preferred Alternative at a PDT meeting in December 6, 2012, as the final identified Preferred Alternative for the project. See Chapter 5 of this document for a summary of the Open Forum Public Hearing as well as the responses provided to the comments received during circulation of the DEIR/EIS along with the transcript.

Joint CEQA/NEPA Document

The project is a joint project by the California Department of Transportation

(Caltrans) and the Federal Highway Administration (FHWA), and is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). Caltrans is the lead agency under NEPA. Caltrans is also the lead agency under CEQA. In addition, FHWA's responsibility for environmental review, consultation, and any other action required in accordance with applicable federal laws for this project is being, or has been, carried-out by Caltrans under its assumption of responsibility pursuant to 23 United States Code (USC) 327.

Some impacts determined to be significant under CEQA may not lead to a determination of significance under NEPA. Because NEPA is concerned with the significance of the project as a whole, it is quite often the case that a "lower level" document is prepared for NEPA. One of the most commonly seen joint document types is an Environmental Impact Report/Environmental Assessment (EIR/EA).

This Final Environmental Impact Report/Environmental Impact Statement (FEIR/EIS) has been prepared following the receipt of comments from the public and reviewing agencies; it includes responses to comments received on the DEIR/EIS, and identifies the preferred alternative. Following circulation of the FEIR/EIS, and approval of the project, a Notice of Determination will be published for compliance with CEQA, and a Record of Decision will be published for compliance with NEPA.

Potential Environmental Consequences and Avoidance, Minimization, and/or Mitigation Measures

Table S-2 summarizes the potential impacts under CEQA and NEPA of the project alternatives and the proposed avoidance/minimization measures. Details for each environmental category are presented in Chapters 3 and 4 of this document.

Coordination with Public and Other Agencies

As part of the NEPA and CEQA process, a scoping meeting is required as part of the preparation of an EIR and EIS. In May 2007, a Notice of Intent (NOI) to prepare an EIS and a Notice of Preparation (NOP) of an EIR were advertised to the public and mailed to elected officials and local, state, and federal agencies having jurisdiction or discretionary approval within the project

corridor. The NOI was published in the Federal Register on May 10, 2007, and the NOP was received and accepted by the State Clearinghouse on May 11, 2007. The public scoping meeting was held in June 2007.

Various agencies were invited to participate in the project as cooperating, participating, and/or responsible agencies, as applicable. Per responses to the invitation letters, interagency review roles were established, and a summary of consultation and coordination is provided in Chapter 5. All agencies on this list have been requested to comment on key components of the environmental document prior to public circulation. A cooperating/participating agency scoping meeting was held in January 2008.

Public outreach efforts include public information meetings held in July 2008, October 2008, and September 2010, and an Open Forum Public Hearing held January 2013.

Table S-1: Permits and Approvals Needed

Agency	Permit/Approval	Status
County of San Bernardino	Freeway agreement Expected to address (1) local roads that will be closed, (2) construction of the new interchanges, and, as applicable (3) relinquishment of the existing portion of SR-58 to the County that will be replaced by the realigned and widened improvement to SR-58 constructed by this project.	To be executed during the Final Design phase of the project.
	Temporary construction permits Required for construction on County roads or other land within the project construction footprint which is owned by the County.	To be acquired during Final Design phase of the project.
Burlington Northern Santa Fe (BNSF)	Encroachment permit Required for work performed within railroad right of way.	To be acquired prior to any construction activity occurring within BNSF right of way.
Bureau of Land Management (BLM)	Caltrans will petition FHWA for a Highway Easement over those BLM lands needed for the project. FHWA, through a MOU with BLM, has the authority to convey land for highway purposes. BLM would remain the underlying fee owner, and the Department would have rights to construct, operate, maintain, etc. Should the proposed right of way be no longer needed for highway purposes, then the land would be quitclaimed back to BLM.	To be executed during the Final Design phase of the project.

Agency	Permit/Approval	Status
California Public Utilities Commission	In accordance with addressing the Public Utilities Code Sections 1201 through 1205, for grade separated structure over BNSF rail line	Application to CPUC to occur during Final Design phase of the project.
California State Water Resources Control Board	Coverage under the General Permit for Discharges of Stormwater Associated with Construction Activity (Construction General Permit, Order No. 2009-0009-DWQ)	Following completion of the Final Design phase of the project. NOI to be submitted prior to construction
California Department of Fish and Wildlife, CFW (formerly California Department of Fish and Game until 2013)	1602 Streambed Alteration Agreement	Application to CFW for 1602 agreement to occur during Final Design phase of the project. Application will occur During PS&E
California Department of Fish and Wildlife, CFW (formerly California Department of Fish and Game until 2013)	2081 Incidental Take Permit	Permit coordination in progress Needed for Desert Tortoise/Loss Desert Tortoise Habitat Needed for Mohave Ground Squirrel 2081 permit process will be completed prior to end of Final Design phase.
U.S. Fish and Wildlife Service	Section 7 consultation for threatened and endangered species	Section 7 coordination complete; Biological Opinion for Desert Tortoise received March 29, 2013

Table S-2: Summary of Potential Impacts & Proposed Measures by Alternative

Affected Resources	Alternative 1 No-Build Alternative	Alternative 2 Southerly Alignment	Alternative 3 Existing Alignment	Alternative 4 Northerly Alignment	Avoidance, Minimization and Compensation Measures
Cost	No impact, but this does not preclude costs in necessary maintenance	$174,467,000	$194,890,000	$194,803,000	N/A
Land Use: Existing & Future Land Use – Permanent Impacts	No impact	Acquisitions required; inconsistencies would result with existing land uses; potentially substantial impacts	Acquisitions required; inconsistencies would result with existing land uses; potentially substantial impacts	Acquisitions required; inconsistencies would result with existing land uses; potentially substantial impacts	Amendments to the zoning and land use designations for parcels affected by the project will be required.
Land Use: Consistency with State, Regional, and Local Plans – Permanent Impacts	Inconsistent	Consistent	Consistent	Consistent	None required
Farmlands/ Timberlands: Permanent Impacts	No impact	61 acres (0.47%) of County farmland would be converted by this alternative. Farmland Impact Conversion Rating <160; Williamson Act land converted <100 acres. 26 acres (5.53%) of Williamson Act farmland within the project area (470 acres) to nonagricultural use, and 0.57% of existing Williamson Act farmland within San Bernardino County (4,541 acres).	69 acres (0.53%) of County farmland would be converted by this alternative. Farmland Impact Conversion Rating <160; Williamson Act land converted <100 acres. 31 acres (6.60%) of Williamson Act farmland within the project area (470 acres) to nonagricultural use, and 0.68% of existing Williamson Act farmland within San Bernardino County (4,541 acres).	61 acres (0.47%) of County farmland would be converted by this alternative. Farmland Impact Conversion Rating <160; Williamson Act land converted <100 acres. 30.4 acres (6.47%) of Williamson Act farmland within the project area to nonagricultural use, and 0.67% of existing Williamson Act farmland within San Bernardino County (4,541 acres).	FA-2: Caltrans shall consult with San Bernardino County, California Department of Conservation, and NRCS during the Final Design and Right of Way phases of the project, regarding the compensation ratio or measure(s) addressing impacted farmland, to determine if an alternative compensation ratio or measure(s) is identified by any of these agencies. The project's impact would be minimized with the purchase of an agricultural conservation easement of comparative quantity and quality to the farmland converted within the project limits.

Affected Resources	Alternative 1 No-Build Alternative	Alternative 2 Southerly Alignment	Alternative 3 Existing Alignment	Alternative 4 Northerly Alignment	Avoidance, Minimization and Compensation Measures
Farmland/ Timberlands: Temporary Impacts	No impact	Truck traffic, dust potentially interfering with agricultural operations	Truck traffic, dust potentially interfering with agricultural operations	Truck traffic, dust potentially interfering with agricultural operations	FA-1: The implementation of a TMP (refer to Section 3.6, Traffic and Transportation/ Pedestrian and Bicycle Facilities) and dust control measures (refer to Section 3.14, Air Quality) would minimize construction impacts. FA-3: Caltrans will minimize disruption to farm operations to properties impacted by closure of current direct access to SR-58. Alternative access would be provided to all properties not acquired and otherwise affected by the project.
Community Impacts	No impact	Acquisitions: • 28 full acquisitions • 65 partial acquisitions Displacements: • 16 single-family residential properties • 2 agricultural operations Access: Changes in access, with longer travel distances. Cohesion/character: potentially substantial impacts (addition of a major facility to a rural landscape)	Acquisitions: • 77 full acquisitions • 150 partial acquisitions Displacements: • 44 single-family residential properties • 2 multi-family residential properties • 3 commercial businesses/non-profit • 1 agricultural operation Access: Changes in access, with longer travel distances. Cohesion/character: potentially substantial impacts (acquisitions and	Acquisitions • 75 full acquisitions • 119 partial acquisitions Displacements: • 34 single-family residential properties • 2 multi-family residential properties • 1 commercial business/non-profit • 1 agricultural operation Access: Changes in access, with longer travel distances. Cohesion/character: potentially substantial impacts (acquisitions)	CI-1: A Construction Management Plan and a Transportation Management Plan would be prepared for the project and include coordination efforts that would inform the community about project construction activities, maintain access to and from the project area during construction, minimize construction-period traffic, control glare, dust, and noise (see Section 3.5, Utilities, Section 3.6, Traffic and Transportation/Pedestrian and Bicycle Facilities, Section 3.7, Visual/Aesthetics, Section 3.14, Air Quality, and Section 3.15, Noise and Vibration). Measures to minimize construction impacts

Affected Resources	Alternative 1 No-Build Alternative	Alternative 2 Southerly Alignment	Alternative 3 Existing Alignment	Alternative 4 Northerly Alignment	Avoidance, Minimization and Compensation Measures
			bisecting cluster of residences)		in these sections, also apply to minimizing permanent community cohesion/ character impacts. CI-2: Pedestrian design features shall be incorporated wherever feasible on the relinquished portion of SR-58, including providing sidewalks along the Lenwood and Hinkley overcrossings, striping all crosswalks, and constructing curb ramps at all new intersections. CI-3: To address bypass impacts, during Final Design, Caltrans will coordinate with the community and County regarding the possibility of placing a Welcome sign at both ends of the new expressway with brief information encouraging visitors to visit services offered in Hinkley. CI-4: Early in the Design Phase, every effort will be made to further minimize the amount of right of way needed for the facility, and to further minimize community and environmental impacts in accordance with Directors Policy Number DP-22: Context Sensitive Solutions. CI-5: For permanent impacts to community character, Visual Measures AES-1 through AES-8; and Farmland Measures FA-1 through FA-4

Affected Resources	Alternative 1 No-Build Alternative	Alternative 2 Southerly Alignment	Alternative 3 Existing Alignment	Alternative 4 Northerly Alignment	Avoidance, Minimization and Compensation Measures
					are also designed to minimize impacts. CI-6: All relocation activities would be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. Relocation resources will be available to all displacees without discrimination. CI-7: For impacts to agricultural business and dairies, every effort will be made during Final Design and Construction to minimize impacts to these, in an effort to allow them to continue operation with as little disruption as possible.
Visual/Aesthetics – Permanent & Temporary	No impact	Key views of distant ridgelines largely unchanged. Residents located close to the northern side of the alignment may have potentially substantial adverse effects to southern-facing views. The neighborhood in KOP3 and rural homes may experience potentially substantial adverse impacts to northern views. Neighborhood in KOP6 would experience moderately adverse impacts to the south due to the new highway	Key views of distant ridgelines largely unchanged. Impact to viewer groups would be potentially substantial because of the respectively high and moderate level of sensitivity of these viewers. The residents, local businesses, and community facilities would experience a substantial deterioration of foreground and mid-ground views from the current view to the addition of interchange, roadbed, and detention basins.	Key views of distant ridgelines largely unchanged. Residents, local businesses, and community facilities would experience a substantial deterioration of the foreground and mid-ground view. Motorists would experience a high impact due to the reduction of existing views and local travelers would experience the highest level of impacts because of their high level of visual sensitivity.	AES-1: All lighting used for the project will be directional, directing light to the highway facility and away from homes and habitats to minimize glare impacts to the night sky, and to minimize affecting background sky views. Glare shields would be used where feasible or appropriate. AES-2: Detention basins and bioswales will be designed and addressed as visually integrated elements of the landscape planting. Contour grading of basins will minimize the visual impact by blending with the surrounding natural landscape features.

Affected Resources	Alternative 1 No-Build Alternative	Alternative 2 Southerly Alignment	Alternative 3 Existing Alignment	Alternative 4 Northerly Alignment	Avoidance, Minimization and Compensation Measures
		alignment. Impacts moderate to no-impact based on the respective distances from the alignment of key viewers.	Commuting and local travelers would experience an adverse change in views, because of the respectively moderate and high level of sensitivity of these groups.		AES-3: Bridge structures shall be pigmented an earth tone that is compatible with the native soil color within the project limits to mitigate visual impacts. AES-4: Native plantings shall be used to minimize the visual impact of the highway and associated detention basins. Please see Section 3.7 in Chapter 3 for specifics about proposed landscaping and erosion control. AES-8: To address impacts relating to cohesion/rural character, and the bisecting of the community by the facility, design efforts will be made to minimize the visual impact by providing linkage across the facility, such as sidewalks on the interchanges, to encourage pedestrians, and bicyclists in the community to cross the facility.
Cultural Resources	No impacts.	One property determined to be eligible for listing in the National Register of Historic Places (NRHP) under Criterion D lies within the alternative footprint and would be impacted. Caltrans performed the Section 106 ("eligible for the National Register of Historic Places (NRHP) and/or the California Register of Historical	Eight, unevaluated properties lie within the alternative footprint and would be impacted. By limiting subsurface testing and additional study to those sites within the Preferred Alternative, Caltrans avoided unnecessary impacts to sites on this unselected alternative.	Eight, unevaluated properties lie within the alternative footprint and would be impacted. By limiting subsurface testing and additional study to those sites within the Preferred Alternative, Caltrans avoided unnecessary impacts to sites on this unselected alternative.	CR-1: If cultural materials are discovered during construction, all earthmoving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find. CR-2: If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities

Affected Resources	Alternative 1 No-Build Alternative	Alternative 2 Southerly Alignment	Alternative 3 Existing Alignment	Alternative 4 Northerly Alignment	Avoidance, Minimization and Compensation Measures
		Resources (CRHR)" evaluations on archaeological sites located within the Preferred Alternative alignment to determine the properties' historical significance and fulfill Caltrans' responsibilities under Section 106. By limiting subsurface testing and additional study to those sites within the Preferred Alternative, Caltrans avoided unnecessary impacts to sites on the other alternatives that were considered.			shall cease in any area or nearby area suspected to overlie remains, and the county coroner contacted. Pursuant to Public Resources Code Section 5097.98, if the remains are thought to be Native American, the coroner will notify the NAHC, which will then notify the MLD. Further provisions of PRC Section 5097.98 are to be followed as applicable. CR-3: All provisions from the MOA and DRP for this project will be implemented. CR4a: Prior to construction, buried site testing will be performed to further define the boundaries of the "sensitive areas." The buried site testing will include a geo-archaeological analysis of the potential for the presence of buried subsurface deposits. CR-4b: An Osteologically-Trained Archaeological Monitor(s) shall be present during all ground disturbing construction activities in sensitive areas, which will be defined after the buried site testing and before completion of final design. In the event that additional cultural deposits are uncovered during construction operations, the archaeological monitor shall be empowered to halt or divert work in the vicinity of the find until the archaeologist

Affected Resources	Alternative 1 No-Build Alternative	Alternative 2 Southerly Alignment	Alternative 3 Existing Alignment	Alternative 4 Northerly Alignment	Avoidance, Minimization and Compensation Measures
					is able to determine the nature and the significance of the discovery. CR-5: A Native American monitor(s) shall be present during all ground disturbing construction activities in sensitive areas, which will be defined before completion of final design.
Water Quality and Stormwater Runoff – Permanent	No impacts	Increased amount of impervious surface area by 107 acres, increasing stormwater runoff, but not substantially enough to affect groundwater levels. Altered drainage patterns, but not substantial enough to adversely affect water quality. Impacts to PG&E's monitoring well network; impacts to pipelines for clean and contaminated water traversing expressway route.	Increased amount of impervious surface area by 149 acres, increasing stormwater runoff, but not substantially enough to affect groundwater levels. Altered drainage patterns, but not substantial enough to adversely affect water quality. Impacts to PG&E's monitoring well network; impacts to pipelines for clean and contaminated water traversing expressway route.	Increased amount of impervious surface area by 142 acres, increasing stormwater runoff, but not substantially enough to affect groundwater levels. Altered drainage patterns, but not substantial enough to adversely affect water quality. Impacts to PG&E's monitoring well network; impacts to pipelines for clean and contaminated water traversing expressway route.	WQ-1: The project will comply with the provisions of Statewide NPDES permit. BMPs have been evaluated, and will be incorporated into the project's engineering plans and specifications. For details on measures WQ-1 through WQ-4, please see Section 3.10 in Chapter 3. WQ-5: Caltrans will ensure that the Lahontan Regional Water Quality Control Board (RWQCB) is kept current regarding the development of the project during the Final Design phase including transmittal of copies of design plans.
Water Quality and Stormwater Runoff – Temporary/Construction Impacts	No impacts	Disturb 742 acres of soil, potentially causing erosion and sediment control issues; construction would involve possible water contaminants.	Disturb 757 acres of soil, potentially causing erosion and sediment control issues; construction would involve possible water contaminants.	Disturb 728 acres of soil, potentially causing erosion and sediment control issues; construction would involve possible water contaminants.	See text above regarding WQ-1 through WQ-5.
Paleontology	No impacts	Areas of high sensitivity for paleontological resources, and therefore, could result in permanent impacts to	Areas of high sensitivity for paleontological resources, and therefore, could result in permanent impacts to	Areas of high sensitivity for paleontological resources, and therefore, could result in permanent impacts to	PA-1: Grading, excavation and other surface and subsurface excavation in the Resource Study Area (RSA)

Affected Resources	Alternative 1 No-Build Alternative	Alternative 2 Southerly Alignment	Alternative 3 Existing Alignment	Alternative 4 Northerly Alignment	Avoidance, Minimization and Compensation Measures
		paleontological resources. Existing fossil localities in nearby similar rock units have produced substantial vertebrate paleontological resources, so high sensitivity for resources, especially near west end of project area and between Valley Wells Rd. and Summerset Rd.	paleontological resources. Existing fossil localities in nearby similar rock units have produced substantial vertebrate paleontological resources, so high sensitivity for resources, especially near west end of project area and between Valley Wells Rd. and Summerset Rd.	paleontological resources. Existing fossil localities in nearby similar rock units have produced substantial vertebrate paleontological resources, so high sensitivity for resources, especially near west end of project area and between Valley Wells Rd. and Summerset Rd.	have potential to impact significant nonrenewable fossil resources of Pleistocene age. A Paleontological Mitigation Plan (PMP) will be prepared, by a qualified paleontologist, prior to completion of the Plans, Specifications, and Estimates phase of this project once specific information about excavation locations and depth is available and monitoring efforts can be properly estimated. The PMP will detail the measures to be implemented. For additional information related to PMP requirements, please see Sub-section 3.12.4 in Chapter 3 of this Environmental Document.

Affected Resources	Alternative 1 No-Build Alternative	Alternative 2 Southerly Alignment	Alternative 3 Existing Alignment	Alternative 4 Northerly Alignment	Avoidance, Minimization and Compensation Measures
Hazardous Waste/ Materials	No impacts	There are a number of PG&E wells that may be impacted by this alignment. The number and type are as follows: • Supply (active) – 7 • Supply (inactive) – 2 • Monitoring (active) – 6 Of the six monitoring wells only two are expected to require relocation, the other four are expected to only require adjustment in place. According to the ISA and PSI reports, there are known hazardous material sources, including USTs, ASTs, contaminated soil, and groundwater within the Alternative 2 alignment. Soil testing was performed for agricultural land, which was tested for pesticides, herbicides, chromium, and ADL. The results of the preliminary site investigations performed for APN 0494-312-26 revealed that soil accumulated within a trench drain associated with an equipment maintenance wash-down slab drain reported elevated levels of cadmium, lead, and TPH. The PSI report recommended that the trench drain and clarifier	There are a number of PG&E wells that may be impacted by this alignment. The number and type are as follows: • Supply (active) – 21 • Supply (inactive) – 13 • Monitoring (active) – 11 • Extraction (active) – 1 • Extraction (inactive) – 1 Surface soils may also be contaminated with chromium as a result of the historic irrigation of agricultural land with groundwater pumped from the PG&E hexavalent chromium plume. There are known or suspected hazardous material sources, such as USTs, ASTs, contaminated soil, and groundwater within the Alternative 3 alignment. There are electrical transformers that may include presence of PCB's; Agricultural land that may have pesticides, herbicides, chromium, and ADL. Approximately 44 single-family residences, two multi-family residences, three businesses/non-profit, and one farm are located within the Alternative 3 right of way	There are a number of PG&E wells that may be impacted by this alignment. The number and type are as follows: • Supply (active) – 14 • Supply (inactive) – 14 • Monitoring (active) – 19 • Extraction (active) – 1 • Extraction (inactive) – 1 Alternative 4 may also impact 2 USGS wells. Surface soils may also be contaminated with chromium as a result of the historic irrigation of agricultural land with groundwater pumped from the PG&E chromium plume. There are known or suspected hazardous material sources, such as USTs, ASTs, contaminated soil, and groundwater within the Alternative 4 alignment. There are electrical transformers that may include presence of PCB's; Agricultural land that may have pesticides, herbicides, chromium, and ADL. Approximately 34 single-family residences, two multi-family residential properties, one	HAZ-1: Proper removal and disposal of all stained pole-mounted transformers and evaluation of all soil beneath the cracked/stained units prior to highway development will be conducted. HAZ-2: All soil excavations conducted on-site will be monitored by the construction contractor for visible soil staining, odor, and the possible presence of unknown hazardous-material sources, such as buried 55-gallon drums and underground tanks. HAZ-3: For structures within the proposed right of way that require demolition, an Asbestos Pre-Demolition Survey will be completed prior to the disturbance of building materials to determine the asbestos content. A certified asbestos contractor will be retained to abate any identified ACM in accordance with all applicable laws, including OSHA guidelines. HAZ-4: In the event that ACM not identified in the asbestos study are uncovered during demolition/renovation activities, the contractor must stop work and have these materials tested for asbestos content. For specific requirements related to demolitions or

Affected Resources	Alternative 1 No-Build Alternative	Alternative 2 Southerly Alignment	Alternative 3 Existing Alignment	Alternative 4 Northerly Alignment	Avoidance, Minimization and Compensation Measures
		materials be removed and disposed of appropriately by a qualified contractor. The results of the preliminary site investigation performed for the multiple parcels located primarily between Mountain view road and Lenwood Road reported pesticides and hexavalent chromium at concentrations below the laboratory reporting limits. In addition, soil samples analyzed for heavy metals reported concentrations consistent with expected background levels. Approximately 16 residences located within the Alternative 2 right of way would likely require demolition. These residences are expected to have a propane AST, water storage AST, water supply well, and a septic tank system. In addition, given the pre-1978 construction, ACMs and lead-based paint should be anticipated during demolition of structures.	and would likely require demolition. The residences are expected to have a propane AST, water storage AST, water supply well, and a septic tank system. In addition, given the pre-1978 construction, ACMs and lead-based paint would be anticipated.	business/non-profit, and one farm are located within the Alternative 4 right of way and would likely require demolition. These residences are expected to have a propane AST, water storage AST, water supply well, and a septic tank system. In addition, given the pre-1978 construction, ACMs and lead-based paint would be anticipated.	renovations see Section 3.13 in Chapter 3. HAZ-5: Prior to demolition, a geophysical survey of affected properties will be conducted in order to investigate the potential for underground features and hazardous materials storage. HAZ-6: Shallow soil sampling performed as part of the PSI confirmed the presence of petroleum, VOCs, metals, and PCBs near identified drum storage and debris covered areas within the environmental footprint of the Preferred Alternative (Alternative 2); all required remediation, including the appropriate handling and disposal of the soil will occur in conjunction with right of way demolition. HAZ-7: The handling, transport and disposal of soil determined to exceed maximum concentration levels for hexavalent chromium will be performed in accordance with all applicable regulations, federal/OSHA standards, Title 22, CCR, Caltrans requirements as stated in Section 7-109 Solid Waste Disposal and Recycling Reporting Caltrans Construction Manual, and the Site Safety Plan prepared for the project.

Affected Resources	Alternative 1 No-Build Alternative	Alternative 2 Southerly Alignment	Alternative 3 Existing Alignment	Alternative 4 Northerly Alignment	Avoidance, Minimization and Compensation Measures
					For further measures HAZ-8 through HAZ-17, please see Section 3.13 in Chapter 3.
Air Quality – Permanent	No impacts	Would not result in higher CO concentrations than those existing within the region. Would not be considered a Project of Air Quality Concern; unlikely that project would generate new air quality violations, worsen existing violations, or delay attainment of national ambient air quality standards for PM10 and PM2.5. On a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be substantially lower than today.	Would not result in higher CO concentrations than those existing within the region. Would not be considered a Project of Air Quality Concern; unlikely that project would generate new air quality violations, worsen existing violations, or delay attainment of national ambient air quality standards for PM10 and PM2.5. On a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be substantially lower than today.	Would not result in higher CO concentrations than those existing within the region. Would not be considered a Project of Air Quality Concern; unlikely that project would generate new air quality violations, worsen existing violations, or delay attainment of national ambient air quality standards for PM10 and PM2.5. On a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be substantially lower than today.	AQ-1: Caltrans will require implementation of effective and comprehensive avoidance and minimization measures, as detailed in Caltrans' Standard Specifications, Section 9.02 (Air Pollution Control), Measures to reduce exhaust emissions specified in Section 14-9.02 (Air Pollution Control) are fully described in Chapter 3 as are measures to reduce exhaust emissions specified in MDAQMD Rule 403.2 (Fugitive Dust Control).
Air Quality – Temporary/Construction Impacts	No impacts	Construction-related emissions would result from earthmoving activities and use of heavy equipment.	Construction-related emissions would result from earthmoving activities and use of heavy equipment.	Construction-related emissions would result from earthmoving activities and use of heavy equipment.	Measures are detailed in Section 3.14.4
Noise and Vibration – Permanent	No impacts	18 representative receivers would experience substantial noise increases (greater than 12 dBA), but would not approach or exceed the NAC of 67 dBA Leq(h).	5 representative receivers would experience substantial noise increases (12-27 dBA), but would not approach or exceed the NAC of 67 dBA Leq(h). Barriers locations M-17-18	4 representative receivers would experience substantial noise increases (15-27 dBA), but would not approach or exceed the NAC of 67 dBA Leq(h). Barriers would be feasible.	Under the Preferred Alternative, barriers were determined to be feasible, but not reasonable; no barriers are proposed.

Affected Resources	Alternative 1 No-Build Alternative	Alternative 2 Southerly Alignment	Alternative 3 Existing Alignment	Alternative 4 Northerly Alignment	Avoidance, Minimization and Compensation Measures
		Barriers would be feasible, but not reasonable; no barriers are proposed.	Segment 3 right of way and M-21 Segment 3 right of way would be feasible, but not reasonable; no barriers are proposed. For 3 sensitive receivers (Alt3-M-19, Alt3-M-24, and Alt3-M-48), barriers would not be feasible due to access constraints and inability to achieve 5 dBA reduction.	One noise barrier would be reasonable, based on Caltrans criteria (M-13 Segment 3). Other barriers would not be reasonable; no barriers are proposed at the other locations.	
Noise and Vibration – Temporary/ Construction Impacts	No impacts	Noise from construction activities may intermittently dominate the noise environment in the immediate area of construction; no adverse noise impacts from construction are anticipated.	Noise from construction activities may intermittently dominate the noise environment in the immediate area of construction; no adverse noise impacts from construction are anticipated.	Noise from construction activities may intermittently dominate the noise environment in the immediate area of construction; no adverse noise impacts from construction are anticipated.	NOI-1: To reduce noise levels from construction to the extent that is technically feasible and avoid unnecessary annoyance from construction noise, construction noise control measures as detailed in Section 3.15 of Chapter 3 will be implemented.
Wetlands and Other Waters	No impacts	2.815 acres of CDFG jurisdictional waters potentially affected (not considered to constitute waters of the United States due to their lack of connectivity with Traditional Navigable Waters).	0.625 acre of CDFG jurisdictional waters potentially affected (not considered to constitute waters of the United States due to their lack of connectivity with Traditional Navigable Waters).	0.707 acre of CDFG jurisdictional waters potentially affected (not considered to constitute waters of the United States due to their lack of connectivity with Traditional Navigable Waters).	W-1: Avoidance and minimization efforts to be utilized in order to protect aquatic resources during the course of the project. See Chapter 3 for detailed measure W-1 on Wetlands. W-2: An Environmentally Sensitive Area (ESA) fence will be installed along washes within the right of way that will not be directly affected by the project. W-3: A biological monitor will coordinate with the RE to ensure that construction activities will not have an impact on washes limited by the ESA fencing. W-4: Project impacts to the California

Affected Resources	Alternative 1 No-Build Alternative	Alternative 2 Southerly Alignment	Alternative 3 Existing Alignment	Alternative 4 Northerly Alignment	Avoidance, Minimization and Compensation Measures
					Department of Fish and Game (CDFG) jurisdictional waters will be mitigated at a minimum 2:1 ratio, either through onsite restoration and/or offsite acquisition.
Plant Species	No impacts	A total of 549.75 vegetation acres (ac) impacted. • 265.66 ac of Atriplex Scrub • 184.98 ac of Creosote Bush Scrub • 99.11 ac of Disturbed Atriplex Scrub. Species affected: crowned muilla (3 individuals) and Mojave spineflower (10.9 ac).	A total of 409.62 vegetation acres (ac) impacted. • 264.17 acres of Atriplex Scrub • 12.26 ac of Creosote Bush Scrub • 133.19 ac of Disturbed Atriplex Scrub. Species affected: crowned muilla (1 individual) and Mojave spineflower (51.4 ac).	A total of 427.31 vegetation acres (ac) impacted. • 279.23 ac of Atriplex Scrub • 0.30 ac of Creosote Bush Scrub • 147.78 ac of Disturbed Atriplex Scrub. Species affected: crowned muilla (2 individuals) and Mojave spineflower (42.1 ac).	BIO-1: Pre-construction surveys for rare plants will be conducted to determine where rare plants are for ESA purposes, during the appropriate blooming period. BIO-2 through BIO-5 (see Chapter 3) will establish monitor and ESA protection. BIO-4: A qualified biologist will monitor construction activities to ensure that no impacts would occur to the populations within the ESA.
Animal Species	No impacts	A total of 740.81 habitat acres (ac) impacted. • Burrowing owl: 740.81 • American badger: 549.75 • Prairie falcon: 549.75 • Le Conte's thrasher: 549.75 • Loggerhead shrike: 549.75 • White-tailed kite: 549.75 • Cooper's hawk: 549.75	A total of 666.91 habitat acres (ac) impacted. • Burrowing owl: 666.91 • American badger: 409.62 • Prairie falcon: 409.62 • Le Conte's thrasher: 409.62 • Loggerhead shrike: 409.62 • White-tailed kite: 409.62 • Cooper's hawk: 409.62	A total of 686.33 habitat acres (ac) impacted. • Burrowing owl: 686.33 • American badger: 427.31 • Prairie falcon: 427.31 • Le Conte's thrasher: 427.31 • Loggerhead shrike: 427.31 • White-tailed kite: 427.31 • Cooper's hawk: 427.31	BIO-6: A biological monitor will monitor all construction activities to ensure that no harm to American badger will take place. All monitoring activities will be consistent with the monitoring measures listed in the avoidance and minimization measures for desert tortoise and Mohave ground squirrel. BIO-7: All temporary, construction staging areas, storage areas, and access roads involved with this project will occur within the permanent impact area. Access to the project site will be gained from the existing SR-58. No new access roads

Affected Resources	Alternative 1 No-Build Alternative	Alternative 2 Southerly Alignment	Alternative 3 Existing Alignment	Alternative 4 Northerly Alignment	Avoidance, Minimization and Compensation Measures
					will be built as part of this project. BIO-8: All measures will be taken to minimize impacts on nesting birds. A pre-construction sweep for nesting birds would be conducted prior to construction activities outside of the nesting season as well. BIO-9: A preconstruction survey of the project site for burrowing owl and other bird species protected by the MBTA will occur 30 days prior to commencing construction activities. For more details see Section 3.20 in Chapter 3. BIO-10: If burrowing owls are found on site during the pre-construction sweep specific procedures must be followed as detailed in Section 3.20 of Chapter 3. BIO-11: Replacement habitat for burrowing owl will be provided according to the ratios listed below and can be combined with the mitigation ratios required for other species, unless the land purchase under that mitigation does not comply with the conditions listed: Replacement of occupied habitat with occupied habitat at 1.5 times per 6.5 acres (9.95) per pair or single bird, or Replacement of occupied

Affected Resources	Alternative 1 No-Build Alternative	Alternative 2 Southerly Alignment	Alternative 3 Existing Alignment	Alternative 4 Northerly Alignment	Avoidance, Minimization and Compensation Measures
					habitat with habitat contiguous with occupied habitat 2 times per 6.5 acres per pair or single bird (13), or Replacement of occupied habitat with suitable unoccupied habitat, as required by the mitigation plan, at 3 times per 6.5 acres (19.5) per pair or single bird.
Threatened and Endangered Species – Permanent	No impacts	A total of 502.34 habitat acres impacted. Listed below the total acres impacted by species: Desert tortoise: 502.34 Mohave ground squirrel: 502.34	A total of 409.62 habitat acres impacted. Listed below the total acres impacted by species: Desert tortoise: 409.62 Mohave ground squirrel: 409.62	A total of 427.31 habitat acres impacted. Listed below the total acres impacted by species: Desert tortoise: 427.31 Mohave ground squirrel: 427.31	See Section 3.21 in Chapter 3 of this Environmental Document for details of Desert tortoise and MGS measures BIO-12 through BIO-33. BIO-32: Mitigation for loss of desert tortoise habitat will be accomplished based on the quality of habitat affected according to the following ratios: • 5:1 ratio for impacts west of Hinkley Road; and • 3:1 ratio for impacts east of Hinkley Road. BIO-33: Mitigation for loss of MGS habitat will be accomplished based on the quality of habitat affected according to the following ratios: • 5:1 ratio for impacts west of Hinkley Road; and • 3:1 ratio for impacts east of Hinkley Road.
Threatened and Endangered Species – Temporary	No impacts	Temporary disturbance of habitats	Temporary disturbance of habitats	Temporary disturbance of habitats	

Chapter 1. **Proposed Project**

[this page left blank intentionally]

Chapter 1. Proposed Project

1.1 Introduction

California Department of Transportation (Caltrans) is the lead agency under NEPA and CEQA. Caltrans proposes to realign and widen SR-58 from a two-lane conventional highway to a four-lane expressway from Post Mile (PM) 22.2 to PM 31.1. The physical improvements for the project would extend from PM 22.2 to PM 31.1; however, in order to account for signage during construction, the total project limits would extend from PM 21.7 to PM 31.6. The total length of the project is 8.9 miles, starting 2.4 miles west of Hidden River Road to 0.7 miles East of Lenwood Road. The project area is approximately five miles west of the city of Barstow, within the Mojave Desert region of San Bernardino County, California. The existing facility exhibits highway operating friction due to uncontrolled access from multiple driveways and unimproved roadways. SR-58 is a route for recreational, interregional, and commercial travelers (See Figures 1.1 and 1.2).

The project is funded in the amount of $22.9 million in the FY 2013-2014 of the 2010 State Transportation Program (STIP) under the 20.20.025.700 Program for new highways. The total cost including right of way ranges from $174,467,000 to $194,890,000.

The project is fully funded and is in the SCAG 2013 Federal Transportation Improvement Program (FTIP) (Project Number 4351), which was found to conform by FHWA on December 14, 2012.[4] Also, the project is included among the listing of the modeled projects in the SCAG 2012 RTP (Project Number 4351). Analysis concludes that the project's operational emissions (which include the ozone precursors, reactive organic gases [ROG], and NO_X) meet the transportation conformity requirements imposed by the EPA and MDAQMD. Please see copies of the listing of the project in the 2012 RTP and the 2013 FTIP in Appendix I of this document.

1.2 Purpose and Need

1.2.1 Project Purpose

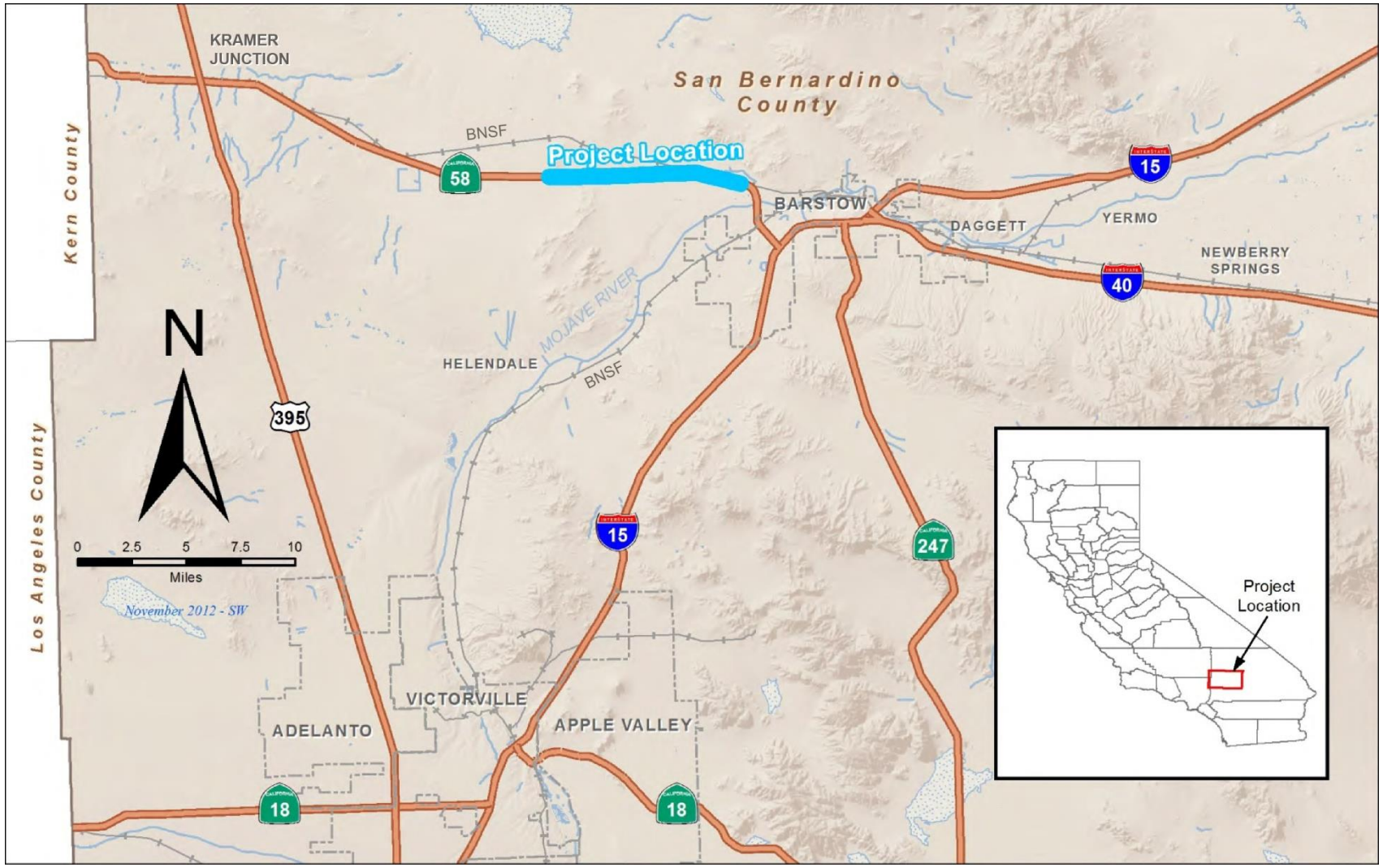
The purpose of the SR-58 Hinkley Expressway Project is:

- To relieve traffic congestion by providing an acceptable Level of Service (LOS), which is consistent with the SR-58 Route Concept Report;
- To improve operational efficiency and enhance safety conditions by maintaining route continuity, upgrading the facility to a controlled access, four-lane expressway that matches the sections on the east and west of the project area;

[4] Project described in Final 2013 FTIP as "SR58 Expressway-realign and widen from 2-4 lane expressway. New interchanges at Lenwood Rd and Hinkley Rd 2.4 miles west of Hidden River Rd. to 0.7 miles east of Lenwood Road -- realign and widen to 4 lane expressway (2-4 lanes) (phase 2)."

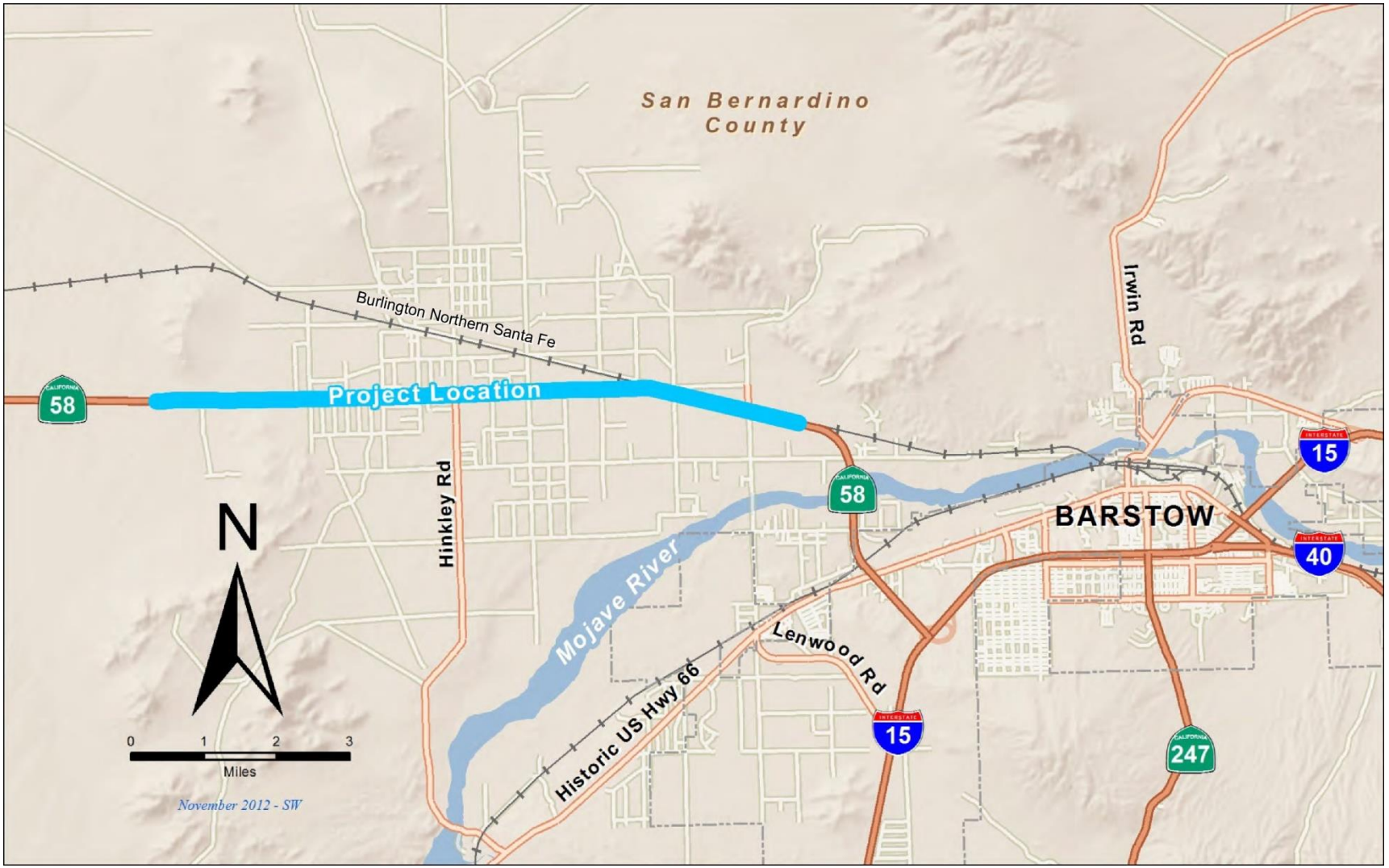
- To correct structural deficiencies, by upgrading the pavement structural section to meet current standards to better accommodate truckloads, reducing roadway damage and maintenance costs associated with the high volume of truck traffic utilizing this route; and
- To meet the needs for regional transportation in accordance with regional plans such as the RTP and FTIP, while minimizing right of way, community, and environmental impacts.

Figure 1.1: Project Vicinity Map



[this page left blank intentionally]

Figure 1.2: Project Location Map



[this page left blank intentionally]

1.2.2 Project Need

1.2.2.1 Capacity, Transportation Demand, and Safety

Existing Capacity and Level of Service

The ability of a highway to accommodate traffic is typically measured in terms of LOS. LOS is a qualitative measure that describes operational conditions within a traffic stream, generally in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety. LOS conditions are designated as "A," indicating best free-flow conditions, through "F," indicating worst-case, congested conditions.

These volumes are used to estimate the extent to which peak-hour traffic volumes equal or exceed the maximum desirable capacity of a roadway. Roadway capacity is generally determined by the number of vehicles that can reasonably pass over a given section of roadway in a given period of time. The *Highway Capacity Manual*, prepared by the National Transportation Research Board, identifies travel speed, freedom to maneuver, and proximity to other vehicles as important factors in determining the LOS on a roadway. LOS definitions for two-lane highways and multi-lane highways are shown in Figure 1.3 Highway Levels of Service Definitions.

Figure 1.3: Highway Levels of Service Definitions

LEVELS OF SERVICE
for Two-Lane Highways

Level of Service	Flow Conditions	Operating Speed (mph)	Technical Descriptions
A		55+	Highest quality of service. Free traffic flow with few restrictions on maneuverability or speed. **No delays**
B		50	Stable traffic flow. Speed becoming slightly restricted. Low restriction on maneuverability. **No delays**
C		45	Stable traffic flow, but less freedom to select speed, change lanes or pass. **Minimal delays**
D		40	Traffic flow becoming unstable. Speeds subject to sudden change. Passing is difficult. **Minimal delays**
E		35	Unstable traffic flow. Speeds change quickly and maneuverability is low. **Significant delays**
F			Heavily congested traffic. Demand exceeds capacity and speeds vary greatly. **Considerable delays**

Source: 2000 HCM, Exhibit 20-2, LOS Criteria for Two-Lane Highways in Class 1

LEVELS OF SERVICE
for Multi-Lane Highways

Level of Service	Flow Conditions	Operating Speed (mph)	Technical Descriptions
A		60	Highest level of service. Traffic flows freely with little or no restrictions on maneuverability. **No delays**
B		60	Traffic flows freely, but drivers have slightly less freedom to maneuver. **No delays**
C		60	Density becomes noticeable with ability to maneuver limited by other vehicles. **Minimal delays**
D		57	Speed and ability to maneuver is severely restricted by increasing density of vehicles. **Minimal delays**
E		55	Unstable traffic flow. Speeds vary greatly and are unpredictable. **Minimal delays**
F		<55	Traffic flow is unstable, with brief periods of movement followed by forced stops. **Significant delays**

Source: 2000 HCM, Exhibit 21-3, Speed-Flow Curves with LOS Criteria for Multi-Lane Highways

As discussed in the *March 2010 Traffic Study Report*, in accordance with Caltrans guidelines, the LOS analyses were conducted using the *Highway Capacity Manual 2000* (Transportation Research Board 2000) methodology to obtain the LOS and corresponding measures of effectiveness for the study intersections and representative highway segments in the project area. Synchro 7.0 software was used to analyze signalized intersections while HCS 2000 software was used to analyze stop-controlled intersections, highway segments, and ramp merge/diverge operations. Truck percentages used in the level of service analysis were derived from peak hour vehicle classification counts. Truck percentages of 40 percent for the SR-58 and 15 percent for the local streets were applied to all the level of service analysis. While Synchro and HCS' two-lane highway and intersection level of service analysis modules permit a truck percentage input above 25 percent, HCS multilane highway and ramp merge/diverge modules do not allow a truck percentage input above 25 percent. Therefore, for 2016 and 2040 without project conditions, HCS analysis was conducted with truck percentage inputs. However, for 2016 and 2040 with project conditions, a Passenger-car-equivalent (PCE) factor of 2.0 was applied to the truck volumes to derive PCE volumes for analysis.

To determine the traffic operational level of service, the existing and projected volumes through an intersection are compared to the capacity of the intersection in order to calculate the delay per vehicle in seconds for the study intersection. The LOS criteria for signalized and stop-controlled intersections are provided in Tables 1-1 and 1-2 below, respectively. LOS categories range from good, nearly free-flow traffic at LOS A, to overloaded, stop-and-go conditions at LOS F.

Table 1-1: Level of Service Criteria for Signalized Intersections

Level of Service	Control Delay per Vehicle (sec/veh)
A	<= 10
B	> 10 - 20
C	> 20 - 35
D	> 35 - 55
E	> 55 - 80
F	> 80

Source: Transportation Research Board 2000.

Table 1-2: Level of Service Criteria for Stop-Controlled Intersections

Level of Service	Control Delay per Vehicle (sec/veh)
A	0-10
B	> 10 - 15
C	> 15 - 25
D	> 25 - 35
E	> 35 - 50
F	> 50

Source: Transportation Research Board 2000.
LOS Criteria above applies to both Two-Way Stop-Controlled and All-Way Stop-Controlled intersections.

Two-lane highway operational analyses were conducted for existing and future without project segments of SR-58 at representative locations along the project limits. Multilane highway operational analyses were also conducted for future with-project segments of the highway at the Hinkley and Lenwood Road interchange locations. LOS criteria for two- lane and multilane highway operations are provided below in Tables 1-3 and 1-4, respectively.

Table 1-3: Level of Service Criteria for Two-Lane Highway Class I

Level of Service	Percent Time- Spent-Following	Average Travel Speed (mi/h)
A	<=35	60.0
B	> 35 - 50	60.0
C	> 50 - 65	59.4
D	> 65 - 80	56.7
E	> 80	55.0

Notes:
1. Source: Transportation Research Board 2000.
2. LOS based on free-flow speed of 60 mi/h

Table 1-4: Level of Service Criteria for Multilane Highways

Level of Service	Maximum density (pc/mi/in)	Average speed (mi/h)	Maximum volume to capacity ratio (v/c)	Maximum service flow rate (pc/h/in)
A	11	60.0	0.30	660
B	18	60.0	0.49	1,080
C	26	59.4	0.70	1,550
D	35	56.7	0.90	1,980
E	40	55.0	1.00	2,200

Notes:
1. Source: Transportation Research Board 2000.
2. LOS based on free-flow speed of 60 mi/h

LOS criteria for ramp merge/diverge analysis are provided in Table 1-5 below.

Table 1-5: Level of Service Criteria for Merge and Diverge Areas

Level of Service	Control Delay per Vehicle (sec/veh)
A	<= 10
B	> 10 - 20
C	> 20 - 28
D	> 28-35
E	> 35
F	Demand exceeds capacity

Source: Transportation Research Board 2000.

Traffic volume data for 2016 and 2040 conditions were derived from Caltrans' traffic forecast data. With the build Alternatives 2, 3, and 4, adjustments to the future forecast volumes were made to account for the alignment and grade separations.

For the Alternative 2 condition, future traffic anticipated to access the SR-58 from local streets would need to enter and exit the Expressway at the Hinkley interchange and the Lenwood Road interchange, as other local intersections will be closed off with cul-de-sacs (figures showing Alternative 2 are in Chapter 2 of this document). Volume adjustments were made as follows: local traffic desiring to access SR-58 from Valley View Road to Flower Street on the west side of Hinkley Road would need to travel to the Hinkley Road interchange to access the highway. As the Alternative 2 alignment would occur entirely south of the Hinkley community, both northbound and southbound traffic desiring to access SR-58 would be anticipated to use the existing SR-58 highway to access the Hinkley Road interchange. In addition, local traffic from east of Hinkley Road at Mountain View Road to Fairview Road would also be expected to use the Hinkley Road interchange to access SR-58. Local traffic from east of Hinkley Road at Mountain View Road to Fairview Road would also be expected to use the Hinkley Road interchange to access the SR-58. Since Summerset Road is located approximately half way between the planned Hinkley Road interchange and the planned Lenwood Road interchange, it is anticipated that Summerset Road traffic desiring to travel westbound would use the Hinkley Road interchange while traffic desiring to travel eastbound would use the Lenwood Road interchange. The Lenwood Road interchange is expected to draw traffic from Dixie Road and eastbound Summerset Road.

Alternatives 3 and 4 volume adjustments are similar since Alternative 3 utilizes the existing SR-58 alignment while Alternative 4 shifts just slightly north of the existing alignment (figures showing Alternative 3 and Alternative 4 are in Chapter 2 of this document). Volume adjustments were made for the two alternatives as follows: traffic originating from and going to north of SR-58 would be expected to travel along a northerly frontage road while traffic originating from and going south of SR-58 would be expected to travel along a southerly frontage road to access the Hinkley Road and Lenwood Road interchanges with SR-58. Similar to Alternative 2 volume adjustments, traffic from west of the Hinkley Road interchange would be expected to use the Hinkley Road interchange to access the SR-58 Expressway, while traffic east of Hinkley Road to westbound traffic from Summerset Road would also be expected access SR-58 via the Hinkley Road interchange. Lenwood Road interchange volume adjustments are the same for all three build alternatives as the project design is the same at this location.

Table 1-6 shows existing and forecasted mainline traffic data on SR-58 within the project limits. As shown in the table, the projected annual average daily traffic (AADT) is the same in the design horizon year whether or not the project is constructed. This is because there are no available alternative routes.

Regional Population/Traffic Forecasts

The 2008 Southern California Association of Government (SCAG) Regional Transportation Plan (RTP) Programmatic Environmental Impact Report (PEIR) determined that the 2008 baseline population for San Bernardino County was 2,097,756 and estimated that the regional population in 2035 would be 2,957,370. Given these numbers, there will be a nearly 41% increase in regional population between 2008 and 2035. Regional traffic is predicted to increase with the projected growth in population.

Table 1-6: Existing and Forecasted Mainline Traffic Data

Data	2011[1] Baseline	2016		2020[2]	2040	
		No-Build	Build (All Alternatives)		No-Build	Build (All Alternatives)
Annual Average Daily Traffic (AADT)	12,100	14,200	14,200	16,000	24,100	24,100
Design Hour Volume (DHV)	1,570	1,820	1,820	2,050	3,080	3,080
Peak Hour Volume (DHV)	940	1,090	1,090	1,230	1,850	1,850
Directional Split (D/S)	60%	60%	60%	60%	60%	60%
Level of Service (LOS)	E	E	B	B	F	C
Vehicle to Capacity Ratio (V/C)	0.59	0.68	0.30	0.34	1.15	0.51
Trucks % in ADT	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%
Trucks % in DHV	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%

Source: Supplemental Traffic Data for Consistency with February 2010 Traffic Study Report Memorandum (October 2011); Shankel pers. comm., March 20, 2013.

[1] When the February 2010 and March 2010 Traffic Operations Analysis (TOA) were approved, 2009 was the Base Line Year for this project; however, in conjunction with the project becoming fully funded in 2011, the Base Line Year for this project was changed to 2011. 2020 traffic information is only being retained because of its use in conjunction with original standard 20-year design horizon requirements. 2040 remains the design horizon year for this project.

[2] When the February 2010 and March 2010 Traffic Operations Analysis (TOA) were approved, 2020 was the planned Opening Year for this project; however, in conjunction with the project becoming fully funded in 2011, the Opening Year was changed to 2016. 2020 traffic information is only being retained because of its use in conjunction with original standard 20-year design horizon requirements. 2040 remains the design horizon year for this project. Numbers and identified Level of Service are based on the build alternatives.

Projected Capacity Needs

Traffic forecasts for the opening year (2016) and forecast year (2040) are provided in Table 1-6 above. Average daily traffic (ADT) is forecast to nearly double, from 12,100 vehicles (2011) to 24,100 vehicles (2040) under Alternative 1 (the No-Build alternative). If no improvements are made, this highway segment is projected to deteriorate from LOS E to LOS F by 2040, with heavy traffic congestion and great variations in speed.[6] The highway configuration for the existing and no-build forecast year is the existing two lane conventional highway structure. Alternatives 2, 3, and 4 assume a four lane expressway thereby increasing the capacity of SR-58. The LOS under Alternatives 2, 3, and 4 would improve to LOS B in the opening year and LOS C in the forecast year.

[6] Transportation Research Board. 2000. *Highway Capacity Manual*.

System Safety Needs – Existing Accident Rates

The Caltrans Traffic Accident Surveillance and Analysis System (TASAS) shows during the three years from July 1, 2008 to June 30, 2011, a total of 50 accidents for the eastbound and westbound directions occurred within the segment of SR-58 between PM 22.2 to PM 31.1.

The actual total and actual fatal plus injury accident rates in this segment are lower than the statewide average for a similar type of facility. However, the actual fatal rate is higher than the statewide average. The types of collision were 20.0% broadside, 20.0% sideswipe, 10.0% rear end, 26.0% hit object, 6.0% overturn, 16.0% head-on, and 2.0% other. The primary collision factors were 36.0% improper turn, 32.0% other violations, 16.0% speeding, 4.0% other than driver, 2.0% unknown, 6.0% failure to yield, and 4.0% driving under the influence (Caltrans 2013a).

Table 1-7: TASAS data from 07-01-2008 to 06-30-2011

Accident rates (per Million Vehicles Miles) (July 1, 2008 to June 30, 2011)						
Location	**Actual**			**Statewide Average**		
	Fatal	Fatal + Injury	Total	Fatal	Fatal + Injury	Total
PM 22.2/31.1	0.050	0.25	0.50	.018	.30	0.71

Source: Project Report, June 2013.

The new four-lane freeway would improve safety by upgrading from two to four lanes which provides for better passing and improved sight-distance. The current access on the existing highway would be eliminated and replaced with interchanges. A separated, 78-foot wide median would reduce the risk of head-on collisions. A clear recovery zone (CRZ) from the edge of the traveled way to obstructions would provide adequate unobstructed recovery area for errant drivers to regain control. Separating local traffic from interregional traffic, via grade separation structures, and full standard shoulder width, improved sight distances and additional traffic lanes, are expected to minimize traffic accidents.

1.2.2.2 Roadway Deficiencies

Operational Deficiencies

Driveways and Intersections: The existing two-lane highway has numerous driveways and intersecting cross-streets, which present conflict points that affect the operation of the highway. Vehicles enter and exit the highway to access businesses, services, and residences along SR-58. There are numerous crossings (both paved and unpaved) where these turning movements occur.

Route Continuity between Existing Four-lane Expressways: At the project location, SR-58 is a two-lane facility; however, immediately east and west of the project, SR-58 is a four-lane facility. The narrower highway section within the project area creates a bottleneck between the existing four-lane highway sections and decreases route continuity.

Structural Section Limitations

SR-58 extends a total of 240 miles, from U.S. 101 near San Luis Obispo, to the west, to I-15 in Barstow, to the east. SR-58 crosses three major north-south routes: I-5, SR-99, and U.S. 395. It is a major connection point for goods movement between Interstate 5 (I-5) in Bakersfield and I-15 and 40 (I-40) in Barstow.

State Route 58 is a major freight access corridor for the Central Valley. It acts as a major extension of the Interstate System by connecting I-5 in Bakersfield to I-15 and I-40 in Barstow and is part of the Strategic Highway Corridor Network (STRAHNET) between SR-99 and Interstate (I-15). It is designated as part of the National Highway System and it is also designated for oversized trucks under the Surface Transportation Assistance Act (STAA) of 1982. Traffic on SR-58 includes a high volume of interstate trucks that transport agricultural and commercial commodities. As indicated by the truck percentages in Table 1-1, truck ADT will consistently increase through forecast year 2040. The truck percentage for all forecasted years, as shown in Table 1-1, is 40%. It is necessary to ensure that the highway pavement can accommodate an increasing number of Equivalent Single Axle Loads (ESALs) over its design life and an increasing number of STAA trucks. The existing pavement structural section is inadequate with respect to its ability to handle the high volume of truck traffic, which is contributing to rising maintenance costs[7]. As shown in Table 1-1, SR-58 is expected to continue to carry high volumes of truck traffic (40% in 2040).

ESAL estimates are used to determine the amount of damage that is caused by the varying number and types of axle loads that a particular pavement section is subject to over its design life. These calculations are made to determine pavement structural section design (pavement layer thicknesses). ESALs specific to SR-58 for a 10-, 20-, and 40-year design life are provided in Table 1-3. In addition, traffic indices (TIs) are also used to determine pavement thickness. The larger TIs correspond with thicker structural sections for the pavement. As indicated in Table 1-3, larger TIs were calculated for a 10-, 20- and 40-year design life, respectively.

The existing pavement structural section of SR-58 was not designed to accommodate the designation pertaining to the national network for STAA trucks, or the ESALs listed in Table 1-8. This has resulted in an increase in pavement maintenance costs.

Table 1-8: Equivalent Single Axle Load Estimate and Traffic Index

	Year	Inside and Outside Lane	
		Mainline ESAL	**Shoulder ESAL**
10-Year	2030	22,268,155	445,363
20-Year	2040	44,536,310	890,726
40-Year	2060	89,072,620	1,781,452
		Mainline TI	**Shoulder TI**
10-Year	2030	13.0	8.2
20-Year	2040	14.1	8.9
40-Year	2060	15.4	9.6

Source: Traffic Impact Analysis. February 2010 (Table 19).

[7] Caltrans Highway Design Manual Section 600.

Improvements that promote access control and separate local traffic from interregional traffic (via grade-separation structures) would address operational needs within the project area. Additionally, construction of a new structural section that would extend overall pavement life and meet standards for STAA trucks would address existing structural section limitations. Less frequent pavement maintenance would reduce future maintenance costs as well as the number and frequency of delays for the traveling public.

State Highway System (SHS)

According to Streets and Highways Code (SHC), section 300 et seq., the intent of the SHS is to serve the state's heavily traveled rural and urban corridors: connect the communities and regions of the state; and serve the state's economy by connecting centers of commerce, industry, agriculture, mineral wealth, and recreation. SR-58 was designated as a part of the SHS under SHC, section 358. The project area is a heavily traveled (Section 1.3.2.1) portion of SR-58. This portion of SR-58 currently has an LOS of E, and is forecasted to have an LOS of F in 2040 if the highway capacity is not increased, thereby negatively affecting the connection between the communities and regions of the state that are served by SR-58.

Intermodal Corridor of Economic Significance Act

The Intermodal Corridor of Economic Significance Act establishes the Intermodal Corridors of Economic Significance (ICES) system, as outlined in SHC sections 2190–2191. The ICES system is composed of corridors that are essential to the California economy in terms of national and international trade. Routes identified as part of the ICES system are important transportation arteries that connect or provide access to major sea or waterway ports, nationwide railway systems, airports, and interstate and intrastate highway systems, thereby serving as intermodal corridors of economic significance. The SR-58 Hinkley Expressway Project is within a portion of the highway that is part of the ICES system,[8] providing intermodal access to centers of commerce.

Interregional Road System

The Interregional Road System (IRRS) is established in SHC Section 164.3. The IRRS is a system of roads or projects that provide interregional connections to all economic centers in the state.[9] SR-58 between I-5 and I-15 is part of the IRRS. It is further classified as a High-Emphasis Focus Route, which requires a facility to be, at a minimum, a four-lane expressway (Caltrans 1999a). The project involves a segment of SR-58 that is part of the IRRS but one of two segments that do not meet the IRRS requirement of a four-lane expressway. As part of the IRRS plan, it will be necessary to meet minimum standards and upgrade the existing two-lane highway to a four-lane expressway.

[8] P. 3, California Department of Transportation. 2004. *Transportation Concept Report.* Available: <http://www.dot.ca.gov/dist6/planning/tcrs/sr58tcr/sr58fulldocument.pdf>.
[9] California Highways. n.d. *State Highway Types*. Available: <http://www.cahighways.org/stypes.html>. Accessed: July 20, 2009.

Freeway and Expressway System

The Freeway and Expressway System (FES) is established in SHC sections 250–257. The FES is a statewide system of freeways and expressways and connections thereto, creating a comprehensive system of access-controlled[10] freeways and expressways throughout the state.[11] The project involves a segment of SR-58 that is part of the FES and therefore subject to access-control requirements. As part to the FES, there is a need to implement access control.

Surface Transportation Assistance Act of 1982

In 1982, the federal government passed the STAA, a comprehensive transportation funding and policy act to address concerns about the surface transportation infrastructure (highways and bridges). The act allows oversize trucks on designated routes. SR-58 is a designated STAA route,[12] which must meet safety standards to accommodate the oversize STAA trucks. The project involves a segment of SR-58 designated for use by STAA trucks. As a designated STAA route, there is a need to meet standards so that oversize STAA trucks can be accommodated.

1.2.2.3 Modal Interrelationships and System Linkages

Interface with Airport, Rail, Port, and Mass Transit Facilities

Various airports, such as the Southern California Logistics Airport, San Bernardino International Airport, Ontario International Airport, East Kern Airport, Palmdale Airport, and March Inland Port, are within the vicinity of the project area. Airports provide cargo services, with most also providing commuter air travel services. Table 1-9, below, provides a summary of cargo tonnage per airport and the approximate distance from the project area.

Additional airports within the immediate project area include Barstow Daggett, Apple Valley, Borax, El Mirage Field (Adelanto), and Gray Butte Field.

Table 1-9: Airport Distance and SCAG 2035 Cargo Tonnage

Facility	Approximate Distance	Tonnage (Thousands)
Southern California Logistics Airport	38 miles southwest	1,290
San Bernardino International Airport	75 miles southwest	230
Ontario International Airport	80 miles southwest	1,959
East Kern Airport	48 miles west	Unknown*
Palmdale Airport	75 miles southwest	781
March Inland Port (Airport)	92 miles southwest	1,130

* East Kern Airport is not within the SCAG jurisdiction that provided the 2035 projections.

Source: SCAG 2008 RTP (Page 111).

[10] Access-controlled highways do not have intersections. Access and egress are provided by ramps at interchanges.
[11] California Highways. n.d. *State Highway Types*. Available: <http://www.cahighways.org/stypes.html>. Accessed: July 20, 2009.
[12] 23 CFR 658, Appendix A.

Again, SR-58 is part of the ICES system. It is an important transportation artery that provides access to major sea or waterway ports, nationwide railway systems, airports, and interstate and intrastate highway systems. SR-58 is also part of the IRRS, which requires four-lane expressways to connect the region's economic centers. Because of airport cargo tonnage projections, the need exists to facilitate the movement of cargo via ground and rail transport.

Rail cargo yards surrounding the project area include the Burlington Northern Santa Fe (BNSF) Barstow Rail Yard (18 miles east), Union Pacific Yermo Rail Yard (30 miles east), BNSF/Union Pacific Bakersfield Rail Yard (99 miles northwest), BNSF Victorville Rail Yard (39 miles southwest), Southern Pacific San Bernardino Rail Yard (65 miles southwest), BNSF San Bernardino Rail Yard (68 miles southwest), and Union Pacific Mira Loma Rail Yard (72 miles southwest). Additionally, the planned Southern California Rail Complex at the Southern California Logistics Airport in Victorville will provide on-site industrial facilities with direct linkages to rail, air, and ground cargo transport.[13] Because of the project's centralized location between the rail yards and the rail complex, there is a need to ensure uninterrupted transport of rail cargo; therefore, conflicts between highway traffic and rail traffic must be avoided.

Cargo trucks from ports west of the project area use this section of SR-58 to access locations to the east because there are few continuous east-west routes that provide interregional connections. These ports include the ports of Long Beach (140 miles away), Los Angeles (160 miles), San Diego (180 miles), and Hueneme (180 miles). Because of this east-west connection, there is a need to facilitate the movement of cargo via ground and rail transport.

1.2.2.4 Project as a Connecting Link

SR-58 is a major freight corridor for the Central Valley. It acts as a major extension of the Interstate System by connecting I-5 in Bakersfield to I-15 and I-40 in Barstow. It is part of the Strategic Highway Network (STRAHNET) between State Route 99 (SR-99) and I-15, designated as part of the NHS, classified as part of the FES, and designated for STAA trucks. It is also included as a High-Emphasis Route and Focus Route under the IRRS. Within District 8, it is functionally classified as a rural Principal Arterial (PM 0.0/29.4) and a rural Major Collector (C1) (PM 29.4/32.9).

The project serves as a connecting link between the facilities and/or systems listed below.

- Local Connections: The Southern California Logistics Airport is located 38 miles southeast of the project area. The planned Southern California Rail Complex at the Southern California Logistics Airport will provide on-site industrial facilities with direct linkages to rail, air, and ground cargo transport. Cargo transported between this cargo center and economic centers to the east will likely travel via this section of SR-58 when ground transport of goods is required.
- Regional Connections, Truck Terminals, and Airports: San Bernardino International Airport, Ontario International Airport, East Kern Airport, Palmdale Airport, and March Inland Port are located south and west of the project site. These airports also carry a substantial amount of cargo that requires rail or ground transport. Additionally, 10 major truck terminals and 80 trucking firms are located in San Bernardino County. Truck cargo

[13] Southern California Logistics Airport and Rail Authorities. EIR

carriers entering or leaving Southern California pass through San Bernardino County and often use this section of the SR-58, with 40% of the traffic on this segment of the highway.

- Regional Connections, Rail, and Port: Rail transport can be facilitated by reducing conflicts between railroad traffic and highway traffic. The railroad crossing within the project area extends to the BNSF Barstow Rail Yard and the Union Pacific, Yermo Rail Yard. These rail yards also connect to the BNSF/Union Pacific Bakersfield Rail Yard and Port Hueneme to the northwest. The BNSF Barstow Rail Yard and the Union Pacific Yermo Rail Yard also connect to the Victorville Rail Yard, the Southern Pacific San Bernardino Rail Yard, the BNSF San Bernardino Rail Yard, and the Union Pacific Mira Loma Rail Yard to the south. These rail yards to the south are also linked to the Port of Los Angeles and Port of Long Beach.

1.3 Independent Utility and Logical Termini

Logical termini are defined as the (1) rational end points for a transportation improvement project and (2) rational end points for a review of environmental impacts. Logical termini prevent segmentation, which may arise if a transportation need extends throughout an entire corridor, but environmental issues and transportation need are inappropriately discussed for only a segment of the corridor.

A project with independent utility or independent significance (1) can function as a standalone improvement and not force immediate transportation improvements elsewhere, or on the remainder of the facility (highway) and (2) does not restrict consideration of other reasonably foreseeable transportation improvements in an adjoining section.

1.3.1 Logical Termini and Sufficiency in Length

Improvements would close the gap between the two existing four-lane expressway segments immediately west and east of project area. The logical termini for physical improvements for this project, is the location where the expressway changes to a highway (i.e., changes from four lanes to two lanes) and the location where the highway changes back to an expressway (i.e., changes from two lanes to four lanes). The physical improvements for the project would extend from PM 22.2 to PM 31.1; however, in order to account for signage during construction, the total project limits would extend from PM 21.7 to PM 31.6.

1.3.2 Independent Utility

The project involves gap closure between two existing four-lane expressway segments and interchanges at key major roadways. The project, and its design features, would not force immediate transportation improvements elsewhere or on the remainder of the highway for the following reasons:

- the project closes a gap between two four-lane highway segments and does not create a need for additional lanes beyond the westerly or easterly project termini, and
- although interchanges will be designed to accommodate all planned/programmed projects within the project area, the design will not create the need for those projects or other improvements.

1.3.3 Consideration of Alternatives for Other Reasonably Foreseeable Transportation Improvements

No transportation projects have been proposed or are reasonably foreseeable within or immediately adjacent to the limits of the project. It is reasonably foreseeable that maintenance activities will need to be performed within or immediately adjacent to the project limits, however, no maintenance activities have been proposed at this time. Therefore, the project would not restrict the consideration of alternatives for other reasonably foreseeable transportation improvements, including adjacent to the project limits.

[this page left blank intentionally]